

March 18th, 2022

## KEY TAKEAWAYS

- Case rates continue to fall across the Commonwealth, reaching levels not seen since August of 2021.
- Thirty four of thirty five health districts in Virginia are currently in decline, as are all fifty states and Washington DC.
- The effective reproduction number ( $R_e$ ) is below one in most regions, indicating continued decline. It is near one in the Eastern region, suggesting case rates may plateau at current low levels.
- The BA.2 subvariant now accounts for 20% of cases in Virginia. BA.2 growth has slowed in the last few weeks, but we expect it to become dominant in April.
- BA.2 is causing significant surges in Western Europe and China. Virginia may be protected by the recency of the Omicron surge and warming weather, but we are monitoring the situation closely.

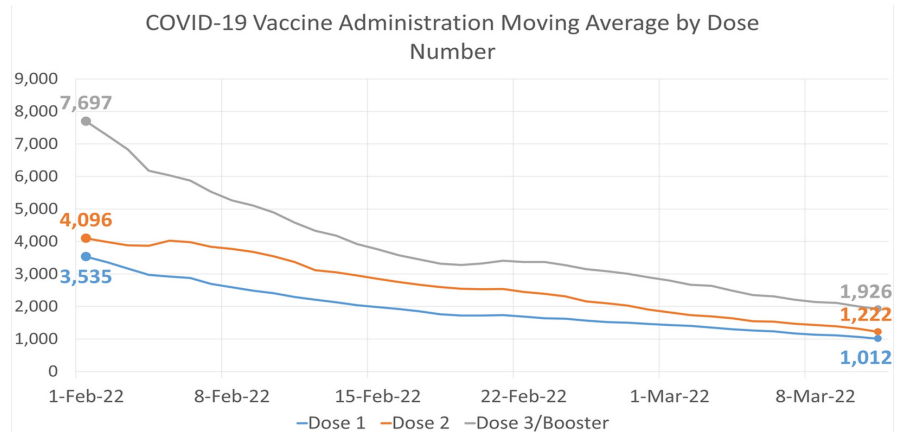
**11 per 100k**Average Daily Cases  
Week Ending March 14, 2022**(187 per 100k)**Adaptive Scenario  
Forecast Average Daily  
Cases, **Already Peaked**  
on Jan. 16, 2022**1,012 / 1,222**Average Daily 1st / 2nd Doses  
March 11, 2022**1,926**Average Daily Boosters  
March 11, 2022

## KEY FIGURES

Reproduction Rate  
(Based on Confirmation Date)

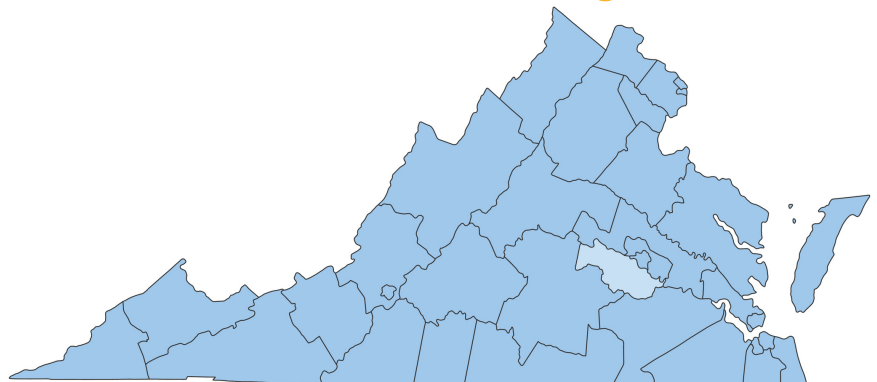
Region	$R_e$ Mar. 14th	Weekly Change
Statewide	0.748	0.008
Central	0.853	-0.028
Eastern	1.078	0.632
Far SW	0.573	0.122
Near SW	0.524	-0.248
Northern	0.838	-0.082
Northwest	0.728	0.080

## Vaccine Administrations



## Growth Trajectories: 0 Health Districts in Surge

Status	# Districts (prev week)
Declining	34 (35)
Plateau	1 (0)
Slow Growth	0 (0)
In Surge	0 (0)



## THE MODEL

The UVA COVID-19 Model and these weekly results are provided by the UVA Biocomplexity Institute, which has over 20 years of experience crafting and analyzing infectious disease models. It is a county-level Susceptible, Exposed, Infected, Recovered (SEIR) model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic. The Institute is also able to model alternative scenarios to estimate the impact of changing health behaviors and state policy.

**COVID-19 is a novel virus,  
and the variant mix  
changes periodically.  
The model improves as  
we learn more.**

## THE SCENARIOS

**Updated:** The models use various scenarios to explore the path the pandemic is likely to take under differing conditions. As the [CDC now estimates](#) that the Omicron variant represents >99% of all new cases in Virginia, all prior Delta variant scenarios have been retired. All current scenarios are based on the immune escape and transmission profiles of the Omicron variant. As before, models use [COVIDcast](#) surveys to estimate county-level vaccine uptake. They then assume that vaccinations increase steadily in each county until this value is reached and 40% of vaccinated individuals receive a booster.

The new "**Adaptive**" scenario assumes that Omicron is as transmissible as Delta but adds an immune escape of 80%. This represents the current course of the pandemic and assumes that there will be no significant changes in interventions or transmission rates in the near future. Note that this scenario was called "Adaptive-Omicron" until January 21st.

The "Adaptive-Spring" scenario was retired this week. It was meant to study the effect of climate and holiday travel by adjusting transmission rates from December to mid-March to match those of Spring 2021. As we are now beyond the end-date of this scenario, it has been depreciated. The "**Adaptive-DecreaseControl**" scenario explores the effects of a hypothetical increase in transmission rates. It is meant to demonstrate that continuing preventive measures are important despite Omicron's milder illness. The "**Adaptive-VariantBA2**" scenario adjusts for the new Omicron BA.2 subvariant's enhanced transmissibility and assumes it will become dominant in April.

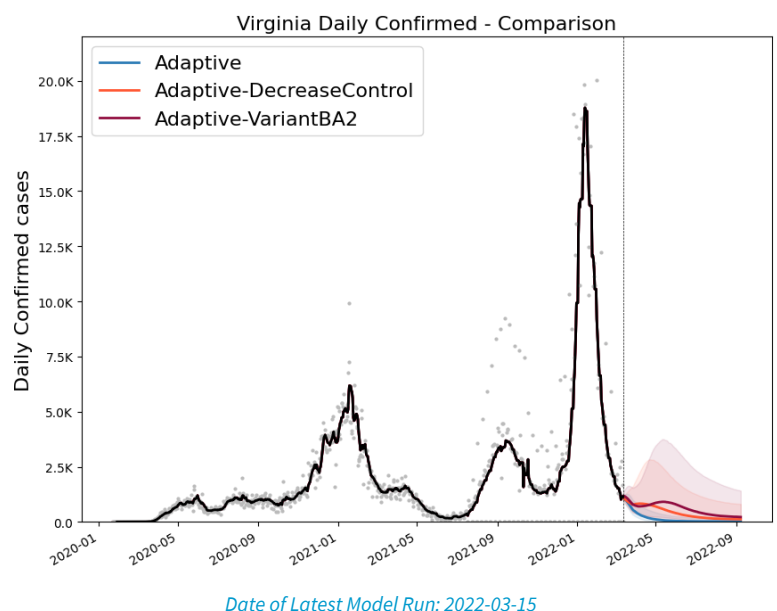
## MODEL RESULTS

**Updated:** The current course "**Adaptive**" scenario (blue) projects continued declines in cases, with Virginia reaching fewer than 500 daily cases by the first week of April.

The "**Adaptive-DecreaseControl**" (orange) is similar to Adaptive, but with more uncertainty, including the possibility of a minor hump in the near future. It forecasts an additional 14,000 cases in April and keeps Virginia above 500 daily cases until late May.

The "**Adaptive-VariantBA2**" (maroon) projects an even slower decline with more uncertainty. It keeps Virginia above 500 daily cases until July and suggests the potential for mild growth in May.

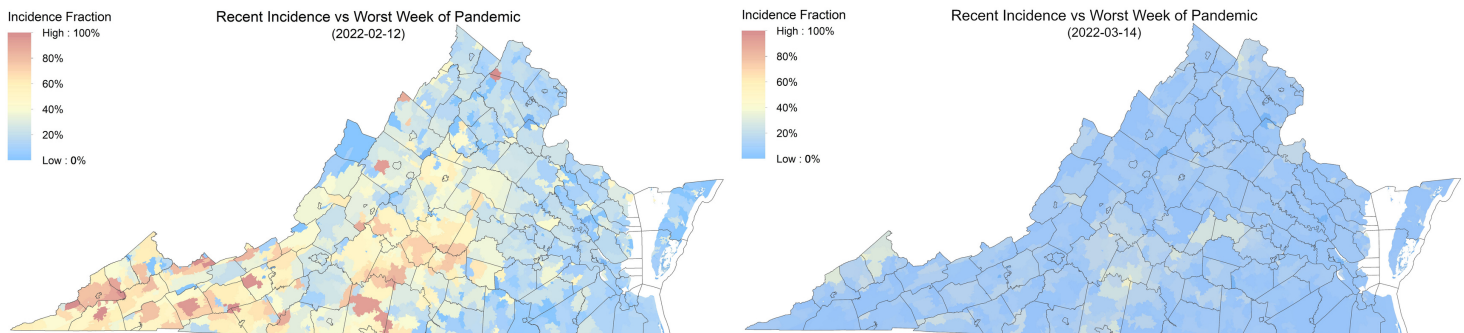
Please do your part to drive down cases. [Practice good prevention](#), including indoor masking in public areas, social distancing and self-isolating when sick, and [get vaccinated and boosted](#) as soon as possible.



## TRACKING DISTANT STORMS

As spring approaches, there is good reason to be optimistic. In spring of 2021, COVID-19 cases quickly fell from the winter peak and remained at pandemic lows until early September. So far, we seem to be following the same trajectory. Weekly cases have fallen by 93% in the last two months, and most of Virginia is still in decline. Every state in the Union is on the same downward trajectory, as is Washington DC. For the moment, models project a mild summer with low case rates and do not forecast another major surge. Moreover, for the first time since July of 2021, the majority of the Commonwealth's counties and cities are experiencing what the CDC defines as "Low" [Community Transmission Levels](#).

With the last of the hot spots in Virginia in decline, the modeling team has refocused on monitoring "distant storms". Like a blizzard or hurricane, many of the outlying storms that appear on our "radar" will pass us by, but we must keep an eye on them. Presently, we are tracking major surges in Western Europe and China, but the forecast for Virginia remains clear.



These maps show current incidence versus the highest recorded incidence of the pandemic for the weeks ending February 12th and March 14th respectively. In February, many locations were still near their pandemic peaks. After a month of decline, local outbreaks have subsided, and all regions are well below their prior peaks. [High Res.]

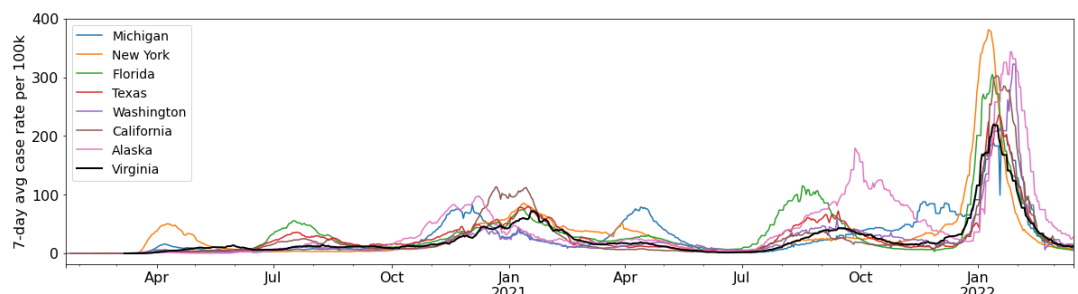
## The Coming BA.2 Variant

Though the BA.2 subvariant is not more severe than the earlier BA.1, it does have a growth advantage. It quickly became dominant in Europe, and models suggested it would overtake BA.1 in the United States by March. But growth has been slower than expected. Today, it accounts for only [20% of new cases](#) in Virginia. The cause of this is still under investigation, but the recent precipitous decline in case rates likely plays a role. As we crested the Omicron wave and cases began to fall, there was simply no room for BA.2 to grow. Combined with the fact that prior BA.1 infections are protective against reinfection by BA.2, Virginia was well positioned to resist BA.2's arrival. Nevertheless, as cases begin to plateau and immunity wanes, we do expect BA.2 to overtake its cousin. Given the doubling rate of about 10 days seen in the United Kingdom, we estimate that BA.2 will become dominant in early April.

## Early Warning

Though the subvariant is causing a significant surge across both Western Europe and China, it is still possible for Virginia to escape this fate. The recency of the BA.1 Omicron wave is an advantage for us, as residents should be at the peak of natural immunity. The timing is also beneficial, as seasonal forcing from warmer weather should reduce the growth rate of all COVID-19 variants. However, the efficacy and durability of BA.1-induced natural immunity is not well understood and the possibility of BA.2 causing another surge cannot be ruled out. For this reason, we are keeping a close eye on the situation abroad, as well as on all early warning systems.

Virginia has lagged several key states in every wave of this pandemic. Though we cannot count on it, this has provided a few weeks notice before case counts rise in Virginia. VDH has also begun [monitoring several wastewater treatment](#) facilities, which provide an early indication that infections are taking off in an area. In combination with our usual epidemic modeling, we are confident that *if* another surge is on the horizon, we will see it coming and provide warning for the Commonwealth.



Case rates per 100,000 for select states. Image from Dr. Srin Venkatramanan (University of Virginia) [High Res.]